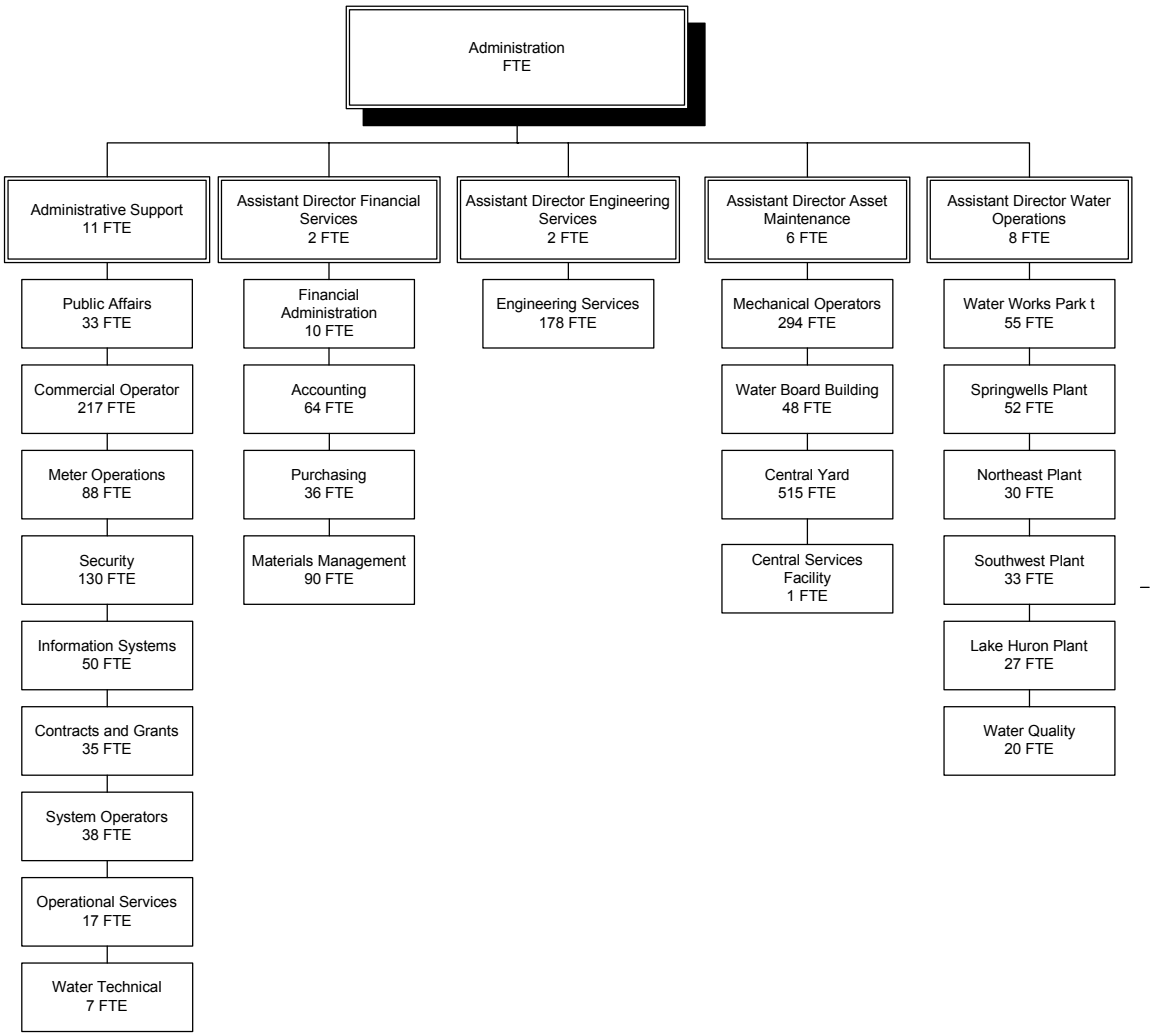
WATER



kids cops clean

WATER

AGENCY MISSION

The mission of the Water and Sewerage Department will exceed our customers' expectations through the innovative treatment and transmission of water and wastewater that promote healthy communities and economic growth, and excel in the management of cost-efficient water sources for the people of Southeastern Michigan.

Water Supply System Goals

1. Implement the policies of the Board, Charter requirements and Federal mandates for supplying water and sewerage services.
2. Provide adequate level of trained personnel to operate the water and sewerage system.
3. To inform the public of agency operations, especially with regard to water operations.

CURRENT FACILITIES

Water Supply System

The Water Supply System is administratively part of the Detroit Water and Sewerage Department while maintained as a separate fund in the City of Detroit accounting system. The Department operates five water treatment plants and twenty-one booster (re-pumping) stations and twenty reservoirs. Of these five water plants, two plants are located in Detroit and one each is located in Allen Park, Dearborn and Port Huron. There are three sources of raw water supply – Detroit River at Fighting Island, Detroit River at Belle Isle and Lake Huron north of Port Huron. DWSD's five water treatment plants pump an average of 675 million gallons of clean drinking water each day.

The Water Supply System's primary role is to provide potable water for over 4 million residents in Southeastern Michigan, delivered at various points in the system at adequate pressure to meet our customers' needs. The water provided is in conformance to applicable standards as required by Michigan's Safe Drinking Water Act. The department furnishes sufficient water pressure and pipeline service to assure acceptable fire protection.

The Water system serves a total population of nearly 4 million people in Detroit and in 125 other communities within a 1,011 square mile service area in Southeastern Michigan. The main administrative offices are located at 735 Randolph in downtown Detroit. Approximately 3,400 miles of transmission and distribution mains within the City of Detroit, and 790 miles of transmission lines in the remaining service area are owned and maintained by the department.

FIVE YEAR HISTORY

Except as otherwise noted, revenues of the Water Supply System provided funding for these improvements.

Fiscal Year 2002-03

Franklin Pumping Station Reservoir Rehabilitation $1,483,798

This project involved the rehabilitation of the Franklin Pumping Station Reservoir in West Bloomfield. The work consisted of concrete repair to walls, base slab, and roof slab including chemical grout injection, sealing, and caulking, and installation of elastometric membrane. This work also involved the construction of reservoir overflows and site drainage, and the refurbishment of sluice gate.

Lead and Copper Corrosion Control and Imlay Station Improvements $10,737,290
This project involved Tucker, Young, Jackson, Tull, Inc. providing professional services in connection with corrosion control treatment and the design of treatment improvements at the Water Treatment Plants in order to comply with Federal Regulations involving the Lead and Copper Rule. The work involved the installation of five additional pumps, and miscellaneous improvements to HVAC, controls, and valves at the North Service Center. This project also involved the design and construction of the chemical feed systems to make DWSD's potable water supply less corrosive. This work further consisted of developing specifications for procurement and installation of corrosion control equipment, soliciting bids for the procurement and installation of the equipment, and acting as the City's agent by providing field service during the installation and testing of corrosion control equipment.

Lake Huron Pretreatment & Field Control Modifications $10,822,317
This project involved the rehabilitation of the pretreatment facilities at the Lake Huron Water Treatment Plant. The work consisted of replacing and installing rapid mix baffle walls to increase the hydraulic mixing of pretreatment chemicals, rehabilitating the existing flocculation equipment, and modifying the filter washwater piping and filter controls. This work also involved modifications to the chlorine feed; chlorine scrubber, sampling systems, and the alum feed piping.

Lake Huron Clearwells and Suction Wells Improvements $5,961,557
This project involved the rehabilitation to the North and South Clearwells and the Suction Well at the Lake Huron Water Treatment Plant. The work consisted of performing pressure injection grouting, sealing stress cracks, repairing construction joints, and installing sheet membrane waterproofing with edge drains over each of the north and south clear wells. The work further involved constructing two detention basins and submersible stormwater pump stations, site improvements, refurbishing rectangular butterfly valves, and improving clearwell instrumentation and miscellaneous metal covers over existing equipment openings.

Other work involved the rehabilitation of the waste washwater retention basins. This consisted of the construction of new reinforced concrete walls, walkways, handrails, edge drains, and miscellaneous electrical improvements.

Belle Isle Dike Rehabilitation $4,094,674
This project involved the rehabilitation of the Belle Isle Dike at the Water Works Park Water Treatment Plant. The work consisted of rebuilding approximately one-half mile of the riverside dike, which included underwater grouting; removing and replacing eroded blocks, concrete cap, and filling cavities. The work further involved repairing slopes, reshaping core, and new bedding core.

Southwest Plant Reservoir No. 2 Rehabilitation $1,694,457
This project involved the rehabilitation of the steel potable water tank at the Southwest Water Treatment Plant Reservoir No. 2**.** The work consisted of the removal and replacement of the corroded structural steel members, cleaning and painting the steel surfaces to the interior and exterior surfaces of the wall base, roof, inlet/outlet piping, and overflow piping including sand blasting. The work

also included the installation of baffle on the inlet piping, a new air vent cupola, and a cathodic protection system and associated electrical work. The work further involved the restoration of the delaminated concrete surfaces of valve pits A1 and A2, reservoir column footings, removal and replacement of the air release/vacuum relief valves in pits A1 and A2, and site drainage and grading.

Roof and Masonry Rehabilitation of the Newer Filter Building $3,014,620
This project involved the rehabilitation of the roof and exterior masonry walls of the Newer Filter Building at the Springwells Water Treatment Plant**.** The work consisted of the removal and reconstruction of the perimeter walls and roof of the Newer Filter Building. Work also included the replacement of existing doors with twenty new stainless steel doors and frames; the installation of a drainage pipe system; and concrete topping on the Mix Chamber Deck.

Water System Replacement – Various Streets Throughout the City $4,342,562
This project involved the replacement of water mains in various streets throughout the City. The work consisted of the replacement of existing six-inch, eight-inch, twelve-inch, and sixteen-inch water mains with approximately 10,149 linear feet of eight-inch, 3,845 lf of twelve-inch, and six linear feet of sixteen-inch City furnished ductile iron water main. This also included the furnishing and installation of approximately 14, 041 linear feet of eight-mil polyethylene wrap, including all appurtenances, connections, and related structures. The work further involved pavement resurfacing and surface restoration.

Lake Huron Water Treatment Plant – Filtration Capacity Improvements $7,636,284
This project involved filter control improvements to the Lake Huron Water Treatment Plant by adding ten additional filters to increase the plant's filter capacity to 400 MGD. The work consisted of filtration capacity improvements including installation of filter media, filtration controls, valves, and piping for ten of the existing empty filter boxes. The work also included improvements to the hydro-pneumatic water, compressed air, and sampling systems. The work further provided for the rehabilitation of the North Filtered Water Influent Channel and associated work at the Lake Huron Plant.

Design/Build/Maintain Contract for Emergency Generators $26,099,715
This project involved the purchase of 44 emergency generators (29 for water and 15 for sewage facilities) after Detroit Energy (DTE) announced that the provision of power could not be guaranteed with the coming of year 2000 (Y2K). The generators were procured to provide electrical power and maintain services to critical water and sewage operations after Y2K. The generators will be further utilized as backup for any emergencies as well as providing peak rate sharing with DTE to help reduce costs. Legal services were procured to ensure that DWSD would not be in violation of the U.S. Tax code or jeopardize their tax-exempt status by using the generators to ease power usage during DTE's peak times, which would benefit a non-government entity. The Sewage Disposal System and Water Supply System financed this project jointly.

Water System Improvements in Grand River – Jeffries Freeway to Southfield Freeway $4,498,270
This project involved the replacement or installation of water mains in Grand River from the Jeffries Freeway to the Southfield Freeway in the City of Detroit in conjunction with the Michigan Department of Transportation and the Detroit Water and Sewerage Department. The work consisted of replacing approximately 49 feet of six-inch, 13,107 feet of eight-inch, thirteen feet of ten-inch, and 138 feet of twelve-inch with 13,333 feet of ductile iron water main with eight-mil polyethylene wrap. This included all appurtenances, connections, and related structures.

Fiscal Year 2001-02

Ford Road Reservoir Rehabilitation $1,872,634
This project involved the rehabilitation of the Ford Road Booster Station in Dearborn Heights, which aided in optimizing the water transmission system. The work consisted of concrete repair work to the interior walls, base and roof slabs including concrete restoration, chemical grout injection, sealing, and caulking, and installation of elastomeric membrane, and Knife Gate Valve. The work further included the construction of reservoir overflows and site drainage, extension of an inlet header, installation of reservoir sampling piping system and sampling sink, and all appurtenances.

Computer Assisted Mapping – Detroit $2,672,252
This project involved the conversion of 830 DWSD section maps (of which 173 were water's) to computerized digital files, before further deterioration of the hard copies occurred. The work included creating and connecting the various components to a skeletal database to increase better efficiency within the department. This project entailed collecting and entering data (all field book index cards - approximately 32,000 segments of water pipe sizes, both city and suburban) into the database, and linking data to the corresponding segment of pipe. It further included setting up Modular Geographic Information Systems Environment (MGE) GeoData Manager database, and provide training to DWSD staff before and after delivery of the final product. The Water Supply System and the Sewage Disposal System jointly financed this project.

Emergency Procurement for Filtered Water Conduit Repair at the Northeast Water Treatment Plant $2,362,443
This project involved L. D'Agostini & Sons, Incorporated repairing the filtered water conduit at the Northeast Water Treatment Plant. The work consisted of repairing circumferential cracks at 30, 50, and 65 feet in the conduit to the roof, walls, and floor. The cracks were perpendicular to the conduit's longitudinal axis. The work further included repairing 45 feet of a diagonal crack in the north external wall.

Springwells Plant Rehabilitation $17,424,536
This project involved the rehabilitation of the Springwells Water Treatment Plant in updating the chlorination process and steam heating system in order to meet current building codes and environmental regulations. The work entailed the removal of two (2) steam boilers, their auxiliary facilities, and installing a new steam generating system. It also included removing the existing chlorine feed, storage, heating and ventilation equipment, and building a new two-story chlorine storage facility. This project also provided

provisions for erecting a temporary pre-engineered metal building to install and house temporary chlorine feed system in the Service Building while construction was under way for the new chlorine facility. This project further involved installing new chlorine feed and scrubber systems, heating and ventilation system, installing three (3) new hot water boilers, and new dehumidification systems for the High Lift Pump Station Pipe Gallery, the Filter Gallery and the Service Building.

Water System Improvements, Various Streets throughout the City $7,128,866

This project involved the replacement of existing water mains in various streets throughout the City of Detroit. The work consisted of replacing six-inch, eight-inch, twelve-inch, and sixteen-inch water mains with approximately 70 linear feet of six-inch, 6,740 linear feet of eight-inch, 797 linear feet of twelve-inch and 1,192 linear feet of sixteen-inch City furnished ductile iron pipe with polyethylene wrap. This included all appurtenances, connections, and related structures. This project further included the replacement of a sixteen-inch process main including, all appurtenances, and related structures at the Lake Huron Water Treatment Plant

Change orders numbers one and two included but were not limited to replacing or relocating existing water mains on Oakman Boulevard from Linwood Street to the City of Detroit – Highland Park City limits with approximately 4,423 linear feet of eight-inch, 2,837 linear feet twelve-inch, and 105 linear feet of sixteen-inch ductile iron pipe. The work further entailed replacing water mains in Beaubien and Brush Streets from East Jefferson to E. Congress and from E. Jefferson to E. Fort respectively in the City of Detroit. The work consisted of replacing approximately 1,116 linear feet of eight-inch, and 760 linear feet of sixteen-inch ductile iron mains including valves and appurtenances. Change orders three and four accommodated the City's urban renewal and economic development projects. This work provided for the replacement of water mains in the Palmer Woods and Santa Barbara areas.

42"Main in Fairchild Road from 24 Mile Road to 21 Mile Road $5,555,606

This project involved the construction of a 42-inch water main on Fairchild Road from 24 Mile Road to 21 Mile Road in Chesterfield Township. The work consisted of installing approximately 15,673 linear feet of 42-inch concrete embedded cylinder pipe with rubber and steel joints including appurtenances. This project provided a second source of water supply to Chesterfield, Macomb, Clinton, and Lenox Townships, and New Haven as a back-up emergency supply to DWSD's 36-inch water main in 24 Mile Road.

Change order number one involved installing a sixteen-inch bypass in a 36-inch water main, a 42-inch water main across I-94 ramps, and replacing pavement from 22 mile Road to 24 mile Road.

Fiscal Year 2000-01

Reservoir Rehabilitation North Service Center Reservoir #1 $1,286,962

This project involved the rehabilitation of North Service Center at the booster station in Troy. It provided for concrete restoration to walls, base and roof slabs, chemical grout injection, sealing and caulking, and installation of elastomeric membrane. The work also included construction of reservoir overflows and site drainage, extension of an inlet header, installation of reservoir

sampling piping system and sampling sink, and appurtenant work.

Change Orders included but were not limited to: additional quantities of sealant for roof cracks by 24,058 linear feet, restoration of concrete walls which included identification and removal of unsound concrete, preparation of concrete surfaces and reinforcing, forming and patching of deteriorated concrete, and curing, finishing and cleaning formed surfaces.

Rochester Booster Pumping Station $8,535,485

This project involved the design/build and operation of the new 57 million-gallon per day (MGD) Rochester Booster Pumping Station in Shelby Township. The project included the purchase of four pumping units, training DWSD's operations and maintenance personnel, preparing an operation and maintenance manual, and performing necessary activities to properly interconnect the new pumping station with DWSD's existing water transmission system. These activities involved controls for both remote and local operations, new controls at DWSD's System Control Center and telemetry systems for remote operations.

Construction Management Services for Overhaul of Major Pumping Equipment $4,025,230

Best American Industrial Services oversaw the repair of major pumping equipment at the Department's five Water Treatment Plants, twenty unmanned water booster stations, and fourteen unmanned Sewerage pumping stations. The work consisted of the removal, overhaul, installation and testing of pumps, valves and motors. Best American also provided construction management services which consisted of ensuring that major pumping equipment continued to operate at maximum efficiency, assisted in the preparation of request for proposal packages for the various phases of repair work, solicited specialized service contractors's proposals, received competitive bids, analysed bids and made recommendations. The contractor also secured the labor force to install equipment on an as needed bases, maintained cost and accounting controls, identified variances between actual and budget cost, and performed other associated tasks and related duties.

Change order no. 1 included, but was not limited to, the removal, repair, installation and testing of varous pumping equipment and related skilled trades assistance.

Springwells/ Southwest Flocculator Replacement $18,492,978

This project involved the refurbishment and /or replacement of twenty flocculators in both the Springwells and Southwest Water Treatment Plants to proved an additional process barrier for removing particles from the raw water prior to filtration. The work was spread over two low flow seasons in both plants in order to maintaining the operating capacity of each plant.

Water System Improvements in Grand River from Grand Blvd. To American $5,028,659

This project involved the replacement of existing water mains from Grand Blvd. to American in the City of Detroit. The work involved the replacement of six-inch, eight-inch, twelve-inch and sixteen-inch water mains with 8,942 linear feet of eight-inch, 294 linear feet of twelve-inch and 10,805 linear feet of sixteen-inch City furnished ductile iron pipe including polyethylene wrap, all appurtenances, connections and related structures. Change Order number one

involved the repair of gate valves on Grand River at W. Grand Boulevard and the realignment of the water main.

Water System Improvements in Grand River from American to Bryden & in Telegraph from Grand River to McNichols Road $4,043,520

This project involved the replacement of existing water mains in Grand River from American to Bryden Street, and in Telegraph from Grand River to McNichols in the City of Detroit. The work involved the replacement of six-inch, eight-inch, twelve-inch and sixteen-inch water mains with 12,225 linear feet of eight-inch, 468 linear feet of twelve-inch and 11,365 linear feet of sixteen-inch City furnished ductile iron pipe including polyethylene wrap, all appurtenances, connections and related structures.

Fiscal Year 1999-00

Master Meter Replacement/Automatic Meter Reading $1,788,000

This project involved DWSD Facilities Design Group designing the final phase of a rehabilitation and improvements program of the suburban water meter pits. The design included digital Automatic Meter Reading (AMR) and instrumentation equipment with radio based supervisory control and data acquisition (SCADA) equipment at 275 sites. It also included two head-end systems with computers to collect data.

Adams Station Improvements $799,000

This project involved Ghafari Associates, Inc. providing technical engineering services for the study and design phases and assistance during the construction phase of a ten million gallon reservoir, reservoir pumping units and other needed improvements at the Adams Road Station in Bloomfield Township. This project also provided preparation of contract documents for the construction phase of Adam Road Station based on recommended improvements from the study report.

Amendment No. 1 provided for additional technical and engineering services requested by DWSD in developing a comprehensive program for the plan, design, and construction phases of Adams Road Station Improvements. This amendment further involved the design of an additional fill and suction line to the yard piping for a future ten million-gallon reservoir at the site. Ghafari Associates, Inc. investigated variable frequency drive alternatives for the proposed reservoir pumps and hydro energy recovery alternatives. The consultant also submitted design review applications and fees on behalf of DWSD to local government agencies; and, performed subsoil exploration and related geo-technical engineering services.

Water Works Park Crib House Rehabilitation $1,291,000

This project involved the rehabilitation of Water Works Park Crib House, surge basins, and emergency intake. The work included selective demolition and replacement of windows, entrance doors, and frames, downspout retainers, hatch and frames, portions of concrete walk, thorough cleaning and painting of interior wood and metal surfaces, and removal and replacement of lifting hoists. The work also consisted of the removal of accumulated silt and debris from the Crib House by hydraulic dredging and disposal to an upland site and grouting open mortar joints in the ten-foot diameter tunnel and shaft. It also provided for the removal and disposal of wood debris at the intake site. The work further involved the removal and repair of the interior concrete in the underwater areas of the crib house,

disposal and replacement of the removal concrete covers and the bends of two shore shaft surge basins.

Change orders included but were not limited to: tuckpointing of an additional 396 feet of missing mortar at joints of the stone parapet wall, additional removal of wood debris, and application of sealant to Crib House exterior. Also, lead-bearing paint was contained and disposed of according to the legal requirements.

72" Main – Quarton Road from Brookdale Park Road to Lahser to Lincoln Road $8,219,000

This project involved the furnishing, installing, chlorinating, flushing and testing of approximately 17,731 linear feet of 72-inch diameter prestressed concrete embedded steel cylinder pipe with rubber and steel joints, including all appurtenances, connections and related structures. This work was performed along Big Beaver Road, Quarton Road, and Lahser Road from Woodward Avenue to Berkshire Drive in Bloomfield Township, City of Bloomfield Hills, and the City of Birmingham. This work also provided for tunnel crossings where the water main passes under Woodward Avenue and the Rouge River. Approximately 1,950 feet of 8-inch sanitary sewer lines were relocated in the City of Birmingham along Quarton Road from Lakeside Road to Chesterfield Road.

Water Main Replacement – Western District $1,817,000

This project involved the replacement of existing water mains in various streets throughout the Western District in the City of Detroit. The work consisted of replacing 4-inch, 6-inch, 8-inch, 12-inch, and 16-inch water mains with approximately 17,278 linear feet of 8-inch, 85 linear feet of 12-inch, and 46 linear feet of 16-inch ductile iron water main with an 8-mil polyethylene wrap. The work also included the connection of existing service connections and fire hydrants, gate valves and the connection of the new mains to existing mains in service. The work further included the installation of gate valves, gate boxes, construction of new gate wells, replacement of hydrants and all appurtenances, chlorinating and flushing new water mains, and related miscellaneous work.

Water Main Replacement – Various Streets – Northern and Central Districts $1,537,000

This project involved the replacement of existing water mains in the Northern and Central districts in the City of Detroit. The work consisted of replacing 6-inch, 8-inch, and 16-inch water mains with approximately 15,862 linear feet of 8-inch and 12-linear feet of 16-inch ductile iron water main with an 8-mil polyethylene wrap. The work also included the connection of existing service connections and fire hydrants, gate valves and the connection of the new mains to existing mains in service. The work further included the installation of gate valves, gate boxes, construction of new gate wells, replacement of hydrants and all appurtenances, chlorinating and flushing new water mains, and related miscellaneous work.

Water Main Replacement – Various Streets – Eastern District $1,764,000

This project involved the replacement of existing water mains in various streets throughout the Eastern district of the city of Detroit. The work consisted of replacing 4-inch, 6-inch, 8-inch, and 12-inch water mains with approximately 13,980 linear feet of 8-inch, 779 linear feet of 12-inch ductile iron water main with an 8-mil polyethylene wrap. It also involved the furnishing and installing of approximately 63 linear feet of

16-inch steel casing pipe in place of 8-inch ductile iron water main under the Consolidated Railroad tracks by the jacking and boring method. The work included the connection of existing service connections and fire hydrants, gate valves and the connection of the new mains to existing mains in service. The work further included the installation of gate valves, gate boxes, the construction of new gate wells, the replacement of hydrants and all appurtenances, the chlorinating and flushing of new water mains, and related miscellaneous work.

Water Main Replacement – Western District $1,596,000
This project involved the replacement of existing water mains in various streets throughout the Western District in the city of Detroit. The work consisted of the replacing 6-inch, 8-inch, and 16-inch water mains with approximately 15,197 linear feet of 8-inch and 14-linear feet of 16-inch ductile water main. The work also included the installation of 8-inch and 16-inch gate valve, 8-mil polyethylene wrap and construction of all appurtenances, connections and related structures.

Adams Road Station Improvements $10,429,000
This project involved constructing a ten million gallon pre-stressed concrete reservoir, completing related yard piping, site work, pump installation, and related piping at the Adams Road Station in Bloomfield Township. The work also provided for valves, the removal and replacement of an existing variable speed drive system on Line Pump L1, construction of an electrical service building and miscellaneous electrical improvements.

Removal, Remediation, and Installation of Underground Storage Tanks $155,000
This project involved the removal of eight underground storage tanks at Lake Huron Plant, Water Works Park, Springwells, Ford Road Station, Wastewater Treatment Plant, and Southwest Water Plant, with associated site clean-up and required disposal of contaminated soil and preparation of necessary regulatory reports. The work further involved the installation of nine new underground storage tanks with associated appurtenant systems, piping, leak detection, fuel dispensing and control systems. This project was initiated and completed to comply with federal underground storage tank regulations and the State of Michigan Underground Storage Tank Regulatory Act (PA423).

Change orders one and two involved the removal and disposal of 1440 cubic yards of contaminated soil, contaminated water removal and disposal, and asphalt and concrete paving at the sites. It also provided for additional professional environmental services as mandated by the Michigan Department of Natural Resources.

Suburban Master Meter Replacement #3 & Meter Pit Rehabilitation & Upgrading #2 $11,142,000
This project involved the replacement of 59 master meters and the rehabilitation of 121 existing water meter pits at a total of 156 suburban locations. Work consisted of the reconfiguration of meter installation piping, meter size change and associated lead joint work, replacement of non-functioning valves, and the installation of automatic butterfly control valves. Further rehabilitation consisted of replacement of sump pumps and vent fans, leak repairs, waterproofing, and changing the size and

location of disconnect switches on control cabinets. Additional work completed at meter replacement sites only consisted of the modification and construction of equipment access to manholes and construction of pipe supports.

Water System Improvements, Various Streets Throughout the City $1,680,000
This project involved the replacement or abandonment of existing water mains in various streets throughout the City of the Detroit. The work consisted of replacing 6-inch, 8-inch, and 12-inch water main with 13,871 linear feet of 8-inch and 288 linear feet of 12- inch City furnish ductile iron water main. It provided for the furnishing and installing of approximately 137 feet of 16-inch diameter steel casing pipe for 8-inch ductile iron main under the Consolidated Railroad tracks, with 8-mil polyethylene wrap; including all appurtenances, connections and related structures. The work also included the replacement of fire hydrants and all appurtenances, chlorinating and flushing new water mains, and related miscellaneous work. The work further included the connection of new mains, the installation of gate valves, gate boxes, and the construction of new gate wells.

Fiscal Year 1998-99
42 - 60-Inch Water Main in Easements Along Wayne/Washtenaw County Line $8,499,000
This project provided a water main supply line to Canton, Plymouth, Superior, Van Buren and Ypsilanti Townships. It involved the furnishing, installing, chlorinating, flushing, and testing of approximately 11,637 linear feet of 60-inch, 13,822 linear feet of 42-inch, thirteen linear feet of 36-inch and eighty-seven linear feet of 24-inch diameter prestressed concrete embedded cylinder pipe with rubber and steel joints (SP-12). This also included the appurtenances, connections and related structures. Change orders included but were not limited to: cost for furnishing twenty-four linear feet of 102-inch concrete pipe, extend 60-inch sleeve five feet, excavate and sink a shaft at the bend at Station 244+72.8, install steel sheeting along the 42-inch encasement and well point system for additional dewatering. It also included the removal and replacement of 48-inch storm piping at Station 65+60 and 1½" MBT cable encountered at Station 0+40, and cost for labor and materials to extend the entrance manhole structure at Station 243+20 by nine feet more than originally planned at Station 247+71.3.

72-Inch Main - Lahser from Lincoln Road to 14 Mile Road to E. of Inkster Road $15,517,000
This project involved work performed on the Fourteen Mile/Lahser Roads 72-inch water main from Inkster Road to Berkshire Drive. The work consisted of the construction of approximately 18,185 linear feet of 72-inch diameter prestressed concrete embedded cylinder pipe with rubber and steel joints (SP-12) including all appurtenances, connection and related structures.

Change orders included but were not limited to lowering the 72-inch water main by an average depth of 3.33 feet, cost for additional saw cutting, removal of concrete & asphalt pavement, and cutting and splicing ½-inch of steel piling sheets. It included the extension of contracts between M & M and Arborist, Owen Tree Service, Inc., modifying twenty feet of tunnel on Fourteen Mile Rd. west of Lahser Road to a lower invert and lowering the 72-inch water main by an average depth of 2.7 ft. The work also consisted of installing nine additional dewatering wells, extra

excavation, mud-jacking pavement on Telegraph Road, and additional pipe closures.

72-Inch Main Adams Station /Adams Rd. to Quarton Rd. to Brookdale Park Rd. $11,691,000
This project connected the Adams and Franklin Pump Stations, and also brought Port Huron Plant water to Franklin Station. This project involved furnishing, installing, chlorinating, flushing and testing approximately 20,746 linear feet of 72-inch and seventy-five linear feet of 36-inch diameter prestressed concrete embedded steel cylinder pipe with rubber and steel joints. It included all appurtenances, connections and related structures, and installation of Owner-furnished equipment. Change orders included but were not limited to installation of sheet piling, CMP liners and, 72-inch water main under the Grand Trunk Railroad' s (GTWRR) bridge on Big Beaver.

Southwest Water Treatment Plant Reservoir No. 3 Rehabilitation $1,705,000
This project involved rehabilitation of Southwest Water Treatment Plant, Reservoir No. 3. The work included replacement of corroded structural members and appurtenances, sand blasting, priming and painting interior and exterior of reservoir, service road paving around the tank and installing a Cathodic system. Change orders included but were not limited to: removal and replacement of three hundred forty-five rafters and grinders at various radii, different sizes and in varying length, furnishing and installing a 25 KVA, 480 Volt Primary and 240-120 Secondary Volt. It also provided for a transformer suitable for outdoor use, removal and disposal of 1,068 feet of rim angle around the perimeter of the tank and reinforcing the connection between the tank wall and the baffle wall.

Rehabilitation of Auxiliary Low Lift Pumps and High Lift Transmission Piping $10,563,000
This project involved the construction management of rehabilitation of an auxiliary Low Lift pump station and a High Lift transmission piping at Water Works Park. The work consisted of modifications to alum and carbon feed Structures, Auxiliary Low Lift Venturi Meters, Coagulation Basin, Auxiliary Low Lift Pump Station, and selected necessary architectural / structural / electrical improvements. The work also included removal of an existing High Lift Transmission Piping and installation of new High Lift Transmission Piping, new Gate Valves and Chambers, and new Venturi Tubes and Chambers. It further included removing Cone Valves from pressure reducing chambers and installation of new Cone Valves, installation of Cone Valve Control System, and modifications and additions to differential transmitting stations.

Computer Assisted Mapping – Suburban-Phase I $2,526,000
This project involved a time extension for contract CS-1213. The contract provided for the conversion of select Suburban Water and Sewer section maps into digital computer graphics systems showing DWSD facilities only. It also provided for the connection of features to a complete database; the scanning and indexing of the master meter drawings, and gate book sheets; pressure reducing valve; and, wastewater control facility drawings. This contract provided additional time for DWSD to purchase and install the Geographic Information System hardware and software, and provided training for DWSD personnel in different facets of the

project. This project was financed jointly by the Water Supply System and the Sewage Disposal System.

Eastside Customer Service Center
$325,000
This project involved the purchase of land and the building located at 13297-13301 E. McNichols for an Eastside Customer Service Center. The work consisted of rehabilitating, and replacing the HVAC units and emergency repair of the center. The building contains 12,000 square feet and has parking to accommodate approximately fifty vehicles. In addition to providing customer service for water and sewerage customers, MichCon leases space from DWSD thereby allowing the facility to retain the "energy concept" of utilities working and sharing office space. This project was financed jointly by the Water Supply System and the Sewage Disposal Systems.

PROPOSED FIVE YEAR CAPITAL PLAN

The capital improvement program for the Water Supply System (WSS) over the next five years is devoted to rehabilitating and improving existing water treatment plants, pumping stations, system instrumentation, and master meter pits; replacing deteriorated water distribution mains in the City of Detroit; installing new mains or rerouting existing mains to accommodate new development in the Empowerment Zone and throughout the City of Detroit; automating the meter reading function; upgrading the instrumentation and process control equipment of the water transmission system; constructing additional transmission mains and pumping facilities in order to loop the transmission system and bring in more water to the service area from the Lake Huron Plant.

The WSS capital improvement program includes a number of projects to rehabilitate and improve aging facilities. The complete replacement of Water Works Park is a major project in the WSS capital program. Virtually every structure and piece of equipment is scheduled to be replaced or rehabilitated. Plans for Springwells Plant include pre-treatment improvements, rehabilitation of filter beds, the low voltage electrical system, chlorine system, high lift pumping system, boilers, masonry and stone structures, and building roofs. The Water Supply System is engaged in an ongoing program to replace distribution mains in the City of Detroit, which have a high maintenance history. Rehabilitation programs for pumping station reservoirs and system instrumentation are also planned. Another major project is the construction of a 70 MGD Haggerty Booster Pumping Station with one 10 MG reservoir including six pumping units. All the water treatment plants have major sludge treatment projects to include continuous sludge removal from the settling basins and filter waste backwash water treatment with coagulation, flocculation, sedimentation and thickening, removal of alum sludge.

The WSS capital improvement program includes a number of projects intended to provide a more reliable and increased water supply to the service area. Construction of a new 42-inch transmission main in the Chesterfield Township loop will provide more water to Macomb County customers and will have the capacity to provide water to additional communities in that area.

The WSS capital improvement program includes a number of projects to take advantage of technology advances in the industry. A project currently underway is the water transmission system instrumentation,

process control and computerization program. Also planned is the installation and implementation of automatic meter reading systems for the suburban master meters, commercial meters, and residential meters.

d. Continuing to computerize various departmental functions to reduce costs and improve operations.

CAPITAL RELATIONSHIPS: INTERDEPARTMENTAL AND KEY STAKEHOLDERS

Detroit Water and Sewerage Department has no current or proposed capital projects requiring input from other City Agencies at this time.

GOALS FOR CAPITAL PROGRAM

1. To provide essential, efficient and user-friendly services by:
   a. Maintaining, improving, and/or replacing water plants, transmission and distribution mains and other facilities to ensure a safe and adequate water supply.
   b. Continuing the water main replacement program aimed at reducing the number of main breaks and leaks in the City of Detroit, thereby improving service, increasing public safety, and lowering costs to Detroit customers.
   c. Automating the meter reading process and rehabilitating the suburban wholesale meters and meter pits to more accurately measure and bill for water service provided.
2. To obtain business growth and expansion by:
   a. Constructing those additional mains, booster stations and reservoirs required to ensure an adequate water supply to all existing and new customers.

RATIONALE FOR CAPITAL PROGRAM

By City Charter, the Detroit Water and Sewerage Department is charged with the responsibility of supplying water, sewage disposal and drainage services within and outside of the City of Detroit. The Department's water treatment, transmission, and distribution facilities and its sewage collection and treatment facilities must be constructed, improved, maintained and replaced in a manner consistent with proper water and sewerage works practices and must meet standards mandated by the Michigan Department of Environmental Quality, Michigan Department of Public Health, and the Environmental Protection Agency. Moreover, the Department must remain capable of meeting its contractual commitments to its customers.

FIVE-YEAR CAPITAL IMPROVEMENT PROGRAM

METRO AREA CONSTRUCTION

The study, design and construction of new water transmission mains and major modifications to the existing water transmission system will ensure continued system integrity, improve system operations and provide additional contracted capacity.

2004-05	$ 24,510,000	Balances, Cash and/or Revenue Bonds
2005-06	10,000,000	Balances, Cash and/or Revenue Bonds
2006-07	-	
2007-08	42,000,000	Balances, Cash and/or Revenue Bonds
2008-09	-	
Unprogrammed	166,500,000	Balances, Cash and/or Revenue Bonds

URBAN SYSTEM IMPROVEMENTS

The study, design and construction of existing water main replacements includes all appurtenance, connections and related structures at various locations throughout the city.

2004-05	$73,479,000	Balances, Cash and/or Revenue Bonds
2005-06	18,314,000	Balances, Cash and/or Revenue Bonds
2006-07	32,632,000	Balances, Cash and/or Revenue Bonds
2007-08	34,800,000	Balances, Cash and/or Revenue Bonds

MAINTENANCE AND REPAIR

This work consists of the study, design and construction of modifications to the department's maintenance and repair yards and service centers.

2004-05	$1,000,000	Balances, Cash and/or Revenue Bonds

MECHANICAL MAINTENANCE

Projects include the purchase of major pieces of metering equipment, the study, design and construction of modifications to the existing water metering facilities, and the development of an automatic metering system. This category also includes projects for the rebuilding or replacement of major pieces of mechanical equipment, and improvements to the Water Board Building.

2004-05	$108,005,000	Balances, Cash and/or Revenue Bonds
2005-06	270,000	Balances, Cash and/or Revenue Bonds
2006-07	-	
2007-08	-	
2008-09	-	
Unprogrammed	21,250,0000	Balances, Cash and/or Revenue Bonds

WATER SUPPLY SYSTEM CAPITAL IMPROVEMENT PROGRAM (41)

COMPUTER SYSTEMS

Department efficiency and effectiveness will be enhanced by new computerized instrumentation and control systems for the Water Transmission System. Also included in the program are a computerized maintenance work order system, technical assistance for an information system/management information system, computer and local area network installation, and telephone and telecommunications improvements and an 821 MHz Trunking System.

2004-05	$101,157,000	Balances, Cash and/or Revenue Bonds
2005-06	3,000,000	Balances, Cash and/or Revenue Bonds

PLANT REPLACEMENT AND RENOVATION - GENERAL PLANT

Projects include water system instrumentation rehabilitation which involves renovation of pumps, valves, motors and electrical power distribution equipment for the water plants and pumping stations. Also included is installation of flow measurement devices at all Water Treatment Plants and Booster Pumping Stations, security systems for the Water Treatment Plants, emergency roof repair and maintenance, and an alum sludge removal and disposal study.

2004-05	$104,844,000	Balances, Cash and/or Revenue Bonds
2005-06	4,250,000	Balances, Cash and/or Revenue Bonds
2006-07	14,500,000	Balances, Cash and/or Revenue Bonds

WATER WORKS PARK PLANT

Planned work includes completing the construction of a new Water Works Park II Water Treatment Plant. Also included is the rehabilitation of the Raw Water Booster Station and building a roof and crane above the existing roof at WWP.

2004-05	$25,079,000	Balances, Cash and/or Revenue Bonds
2005-06	2,000,000	Balances, Cash and/or Revenue Bonds

SPRINGWELLS WATER PLANT

Projects include rehabilitation or replacement of 68 filters, improving the chemical feed system, replacement of filter backwash pumps and motors, refurbishing air compressors, providing new filter media, underdrains, valves and rate controllers, replacement of pumps, motors, and valves in the Low Lift and High Lift Pumping Stations, the installation of Variable Frequency Drives for several pumps in both pumping stations, installation of a local instrumentation and controls system to operate equipment at both stations, construction of isolation valve chambers for seven high lift discharge lines and upgrading the vacuum priming system.

2004-05	$16,489,000	Balances, Cash and/or Revenue Bonds
2005-06	73,365,000	Balances, Cash and/or Revenue Bonds
2006-07	277,460,000	Balances, Cash and/or Revenue Bonds
Unprogrammed	7,245,000	Balances, Cash and/or Revenue Bonds

WATER

NORTHEAST WATER PLANT

Projects include the complete rehabilitation of the Flocculation/Sedimentation basins, rehabilitation of the chemical storage and feed systems, upgrading of the Low Lift and High Lift Pump Stations, improvements to the electrical and mechanical deficiencies in the Switchgear, Wash Water, Chemical, Administration and Flocculation buildings. Works also consists of installation of continuous sludge collection equipment and construction of a treatment and disposal facility for sludge. Also included is the construction of filter media replacement and related filter rehabilitations, a comprehensive refurbishment of the Low Lift and High Lift Pump Stations and the replacement of the filter isolation and flow control valves and actuators, and a dehumidification system throughout the filter pipe gallery.

2004-05	$31,708,000	Balances, Cash and/or Revenue Bonds
2005-06	18,729,000	Balances, Cash and/or Revenue Bonds
2006-07	97,522,000	Balances, Cash and/or Revenue Bonds
2007-08	24,264,000	Balances, Cash and/or Revenue Bonds

SOUTHWEST PLANT

Projects include continuous sludge removal from the settling basins and filter waste backwash water treatment and removal of alum sludge to treatment facilities, rehabilitation of the Intake structure, installation of new low lift pump, installation of new ventilation system in the Flocculator Building, installation of Variable Frequency Drives to the filtration system, installation of electrical and instrumentation control system, and improvements to the chemical building and chemical system.

2004-05	$41,521,000	Balances, Cash and/or Revenue Bonds
2006-07	41,745,000	Balances, Cash and/or Revenue Bonds
2007-08	14,835,000	Balances, Cash and/or Revenue Bonds

LAKE HURON WATER PLANT

Projects include the construction of new treatment facilities for the disposal of waste washwater and rehabilitation of an underground clearwell.

2004-05	$25,062,000	Balances, Cash and/or Revenue Bonds

PUMPING STATIONS AND RESERVOIRS

Projects include rehabilitation of sixteen reservoirs and eight booster pumping stations, replacement of equipment at W. Chicago, Electric, Farmington, Michigan and Roseville booster stations, electrical improvements at the Schoolcraft and Wick Pumping Stations. Also included is the design and construction of a new water reservoir and pumping station in Chesterfield.

2004-05	$77,205,000	Balances, Cash and/or Revenue Bonds
2005-06	10,895,000	Balances, Cash and/or Revenue Bonds
2006-07	2,000,000	Balances, Cash and/or Revenue Bonds
2008-09	27,800,000	Balances, Cash and/or Revenue Bonds

WATER SUPPLY SYSTEM - PROPOSED FIVE YEAR CAPITAL PLAN

Summary of Water Supply System Highest Priority Projects

Project Category	Projected Cost
Metro Area Construction (MAC): projects involving the construction or replacement of water mains, pump stations and reservoirs outside of the City of Detroit	$ 70,976,000
Urban System Improvements (USI): projects involving the construction or replacement of water mains inside of the City of Detroit	155,747,000
Mechanical Maintenance (MM): projects relating to the purchase of major metering equipment, development/construction/rehabilitation of water metering facilities, and rebuilding of major pumps, motors, and valves	97,500,000
Computer Systems (CS): projects involving computerized instrumentation and control systems	89,444,002
Plant Renovation and Replacement: rehabilitation and improvement projects related to the following:	
General Plant (GP) - projects common to all or a number of water plants and/or pumping stations	92,472,000
Water Works Park (WWP) – rehabilitation and/or renovation work atWater Works Park Plant	5,000,000
Springwells Plant (SP) – rehabilitation and/or renovation work at Springwells Water Plant	366,471,000
Northeast Plant (NE) – rehabilitation and/or renovation work at Northeast Plant	166,456,000
Southwest Plant (SW) – rehabilitation and/or renovation work at Southwest Plant	58,580,000
Lake Huron (LH) – rehabilitation and/or renovation work at Lake Huron Water Plant	20,163,000
Pumping Stations and Reservoirs (PSR) – rehabilitation and/or renovation work at various reservoirs pumping stations	105,021,000
Water Supply System Highest Priority Projects – Total	**$1,227,830,002**

City of Detroit
Proposed Capital Agenda
FY 2005-06 through 2009-10

Water Department

	Project Status	*Timeline*	*Impact on Budget*	*Impact on Staffing*	*Impact on Budget*	*Funding Source*	*Auth Un-issued*	*Budget 2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*Un-Program*	*Rec. 5-Year Plan Total*
Metro Area Construction						R.S.		$24,510	$10,000		$42,000			$166,500	$52,000
Urban Systems Improvements (UIS)						R.S.		$73,479	$18,314	$32,632	$34,800				$85,746
Maintenance and Repair						R.S.		$1,000							$0
Mechanical Maintenance (MM)						R.S.		$108,500	$270					$21,250	$270
Computer Systems (CS)						R.S.		$101,157	$3,000						$3,000
Plant Replacement and Renovation - General Plant (GP)						R.S.		$104,844	$4,250	$14,500					$18,750
Water Works Park Plant (WWP)						R.S.		$25,079	$2,000						$2,000
Springwells Water Plant (SP)						R.S.		$16,489	$73,365	$277,560				$7,245	$350,925
Northeast Water Plant (NE)						R.S.		$31,708	$18,729	$97,522	$24,264				$140,515
Southwest Plant (SW)						R.S.		$41,521		$41,745	$14,835				$56,580
Lake Huron Water Plant (LH)						R.S.		$25,062							$0
Pumping Stations and Reservations (PSR)						R.S.		$77,205	$10,895	$2,000		$27,800			$40,695

Total by Funding Source	***Budget 2004-05***	***2005-06***	***2006-07***	***2007-08***	***2008-09***	***2009-10***	***Un-Program***	***5-Year Total***
R.S.	*$630,554*	*$140,823*	*$465,959*	*$115,899*	*$27,800*	*$0*	*$194,995*	*$750,481*

Total by Agency: Water Department	***Budget 2004-05***	***2005-06***	***2006-07***	***2007-08***	***2008-09***	***2009-10***	***Un-Program***	***Grand Total***
	$630,554	*$140,823*	*$465,959*	*$115,899*	*$27,800*	*$0*	*$194,995*	*$1,576,030*

Project Status: M=project is maintaining current infrastructure; N=project will result in new development
Project Timeline: P=project is proposed; O=project is ongoing; U=project is one time and underway
Impact on Operating Budget: AF=additional funding is required; RF=results in reduction of funding; NOI=no operating impact
Impact on Staffing Budget: AS=additional staffing is required; RS=results in reduction of staffing; NSI=no staffing impact
Impact on Operating Budget $: annual additional funding or (reduction of funding) to operating budget

WATER SUPPLY SYSTEM High Priority Projects (41)

The water supply system capital improvement schedules are presented in the Capital Agenda according to major program categories because individual projects would be numerous to include separately. The most important projects for each program category are shown below.

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Automatic Vacuum and Air Release Valve Pit Modifications	N	O	NOI/NSI	MAC	S/D	2005	$ 1,400,000	
Automatic Vacuum and Air Release Valve Pit Modifications	N	P	AF/NSI	MAC	C	2006	10,000,000	
96" Main Relocation - 24 Mile Road and Dequindre	N	O	NOI/NSI	MAC	C	2005	17,576,000	
Wixom - South Lyon Pipeline	M	U	AF/NSI	MAC	C	2008	42,000,000	
				Metro Area Construction - Subtotal			**$ 70,976,000**	
Water Main Replacements & Improvements Throughout the City	M	O	NOI/NSI	USI	C	2005	$ 53,792,000	Various
Comprehensive Water Audit	M	O	NOI/NSI	USI	S	2005	2,088,000	Various
Water Main Replacement Allowance	M	O	NOI/NSI	USI	D/C	2005	12,294,000	Various
Water Main Replacement Allowance	M	O	NOI/NSI	USI	D/C	2006	18,314,000	Various
Water Main Replacement Allowance	M	O	NOI/NSI	USI	D/C	2007	32,632,000	Various
Water Main Replacement Allowance	M	O	NOI/NSI	USI	C	2008	34,800,000	Various
Palmer Woods Phase IV Improvements: Water System and Lateral Sewer Replacement	M	P	NOI/NSI	USI	C	2005	1,827,000	10
				Urban System Improvements - Subtotal			**$ 155,747,000**	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Water Meter Replacement and Automatic Meter Reading Equipment Installation in the City of Detroit	N	U	NOI/NSI	MM	D/C	2006	$ 97,500,000	Various
				Mechanical Maintenance - Subtotal			**$ 97,500,000**	
Instrumentation, Control and Computer System Program - Water Transmission System	N	U	NOI/NSI	CS	D/C	2005	$ 26,003,000	
Regional 800 MHz Radio System	N	U	NOI/NSI	CS	D/C	2005	18,650,000	
Expanded GIS Services & Implementation	M	U	AF/AS	CS	D	2005	4,441,000	
Information Systems Evergreening	M	O	NOI/NSI	CS	C	2005	2,250,000	
Information Systems Data Systems Improvements	N	P	NOI/NSI	CS	S/D/C	2005	2,000,000	
PBX & Telecommunications Systems Improvement & Replacement	M	P	NOI/NSI	CS	S/D/C	2006	3,000,000	
Low Voltage Wiring	M	P	NOI/NSI	CS	C	2005	3,000,000	
Information Systems Wide Area Infrastructure Improvements	N	U	NOI/NSI	CS	S/D/C	2006	13,100,000	
Department-wide Electronic Document Management System	M	U	NOI/NSI	CS	S/D/C	2006	4,500,000	
Secure Connection for Business & Process Control Networks and Related Systems Security Improvements	M	U	NOI/NSI	CS	S/D/C	2005	2,250,000	
Information Systems Local Area Network Improvements	M	P	NOI/NSI	CS	S/D/C	2005	7,000,002	
Department-wide Enterprise Application Integration (EAI)	N	P	NOI/NSI	CS	S/D/C	2005	3,250,000	
				Computer Systems - Subtotal			**$ 89,444,002**	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Overhaul of Major Electrical Power Distribution Equipment	M	U	NOI/NSI	GP	C	2005	4,167,000	Various
Facilities As-built Documentation Development and Maintenance Services	M	U	NOI/NSI	GP	D/C	2005	3,210,000	
Power Enhancement - Modifications to the Existing Generator Systems	M	U	NOI/NSI	GP	C	2005	8,810,000	Various
Power Enhancement - Primary Service Conversion and PCB Disposal	N	U	NOI/NSI	GP	C	2005	10,500,000	Various
Power Enhancement - New Generator Systems	N	U	AF/NSI	GP	C	2005	16,800,000	Various
Security Systems Upgrade for Various Booster Pumping Stations	M	U	NOI/NSI	GP	DB	2005	8,663,000	Various
As-needed Services for Concrete Testing, Geotechnical Soil Borings, Other Testing Services & Related Services	N	U	NOI/NSI	GP	D/C	2005	922,000	Various
Job Order Contracting: As-needed General Construction Services	M	U	NOI/NSI	GP	C	2005	3,050,000	Various
Roof & Pavement Asset Management Program & As-needed Engineering Services	M	P	NOI/NSI	GP	D	2005	2,500,000	Various
Asbestos Containing Material & Lead Based Paint Abatement for all DWSD Facilities	M	P	NOI/NSI	GP	C	2005	3,250,000	Various
Installation of Flow Measurement Devices at Water Treatment Plants & Booster Pumping Stations	N	P	AF/NSI	GP	D/C	2007	14,500,000	Various
Department-wide Roof Replacement and Repair III	M	P	NOI/NSI	GP	D/C	2005	2,500,000	Various
Vulnerability Assessment Upgrade	N	P	NOI/NSI	GP	C	2005	13,600,000	Various
						General Plant - Subtotal	**$ 92,472,000**	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Water Works Park Cranes and Clearance	N	P	NOI/NSI	WWP	D/C	2005	5,000,000	3
						Water Works Park - Subtotal	**$ 5,000,000**	
Springwells Water Treatment Plant - Filter Rehabilitation - Phase II	M	U	NOI/NSI	SP	C	2005	$ 5,036,000	
Springwells Water Treatment Plant Chemical Feed System Improvements	M	O	NOI/NSI	SP	DB	2005	8,110,000	
1958 Filter Rehabilitation, Heat/Dehumidify 1930 Filter Area	M	U	NOI/NSI	SP	D	2005	2,500,000	
1958 Filter Rehabilitation, Heat/Dehumidify 1930 Filter Area	M	P	NOI/NSI	SP	DB	2006	56,990,000	
Springwells Water Treatment Plant - Replacement of Washwater Pumps and Controls	M	P	NOI/NSI	SP	D/C	2006	2,850,000	
Springwells Water Treatment Plant - Auxiliary Facilities Improvements	M	P	NOI/NSI	SP	DB	2006	11,800,000	
Low Lift and High Lift Pump Station - Springwells Water Treatment Plant	N	P	NOI/NSI	SP	DB	2007	113,160,000	
Emergency High Lift Header Stabilization - Springwells Water Treatment Plant	M	P	NOI/NSI	SP	DB	2006	1,725,000	
Pre-treatment Improvements - SPWTP	M	P	NOI/NSI	SP	D/C	2007	164,300,000	
						Springwells - Subtotal	**$ 366,471,000**	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Flocculation/Sedimentation Basin Upgrades	M	P	NOI/NSI	NE	DB	2007	$ 39,252,000	1
Chemical Building/Process Mechanical Systems	M	P	NOI/NSI	NE	DB	2008	4,164,000	1
Major Pumping Equipment Improvements	M	P	NOI/NSI	NE	DB	2007	20,170,000	1
Intermediate Electrical/Mechanical System Improvements	M	P	NOI/NSI	NE	DB	2008	20,100,000	1
Sludge Treatment and Waste Washwater Treatment Facilities	M	P	NOI/NSI	NE	DB	2007	18,000,000	1
Northeast Water Treatment Plant - Filter Media Replacement and Related Filter Rehabilitations	M	P	NOI/NSI	NE	DB	2007	20,100,000	1
Northeast Water Treatment Plant - High Priority Improvements to the Major Pumping Equipment	M	P	NOI/NSI	NE	DB	2006	13,570,000	1
Northeast Water Treatment Plant - Rehabilitation of Filtration System	M	P	NOI/NSI	NE	DB	2005	31,100,000	1
						Northeast - Subtotal	**$ 166,456,000**	
Southwest Water Treatment Plant Intake Improvements & Rehabilitation	M	P	NOI/NSI	SW	C	2005	2,000,000	
High Lift and Low Lift Pump Station and Administration Building Improvements - SWWTP	M	P	NOI/NSI	SW	DB	2008	2,760,000	
Heating, Ventilation and Dehumidification Improvements: Plumping and Auxiliary Services: Miscellaneous Mechanical - SWWTP	M	P	NOI/NSI	SW	DB	2007	6,900,000	
Filtration Improvements - Southwest Water Treatment Plant	M	P	NOI/NSI	SW	DB	2007	28,750,000	
Electrical and Instrumentation and Controls - Southwest Water Treatment Plant	M	P	NOI/NSI	SW	DB	2008	12,075,000	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Chemical System and Chemical Building Improvements - Southwest Water Treatment Plant	M	P	NOI/NSI	SW	DB	2007	$ 6,095,000	
					Southwest - Subtotal		**$ 58,580,000**	
Waste Washwater Treatment Facility, Lake Huron Water Treatment Plant	M	U	NOI/NSI	LH	D/C	2005	$ 2,831,000	
Lake Huron Water Treatment Plant Clearwell No. 2 Rehabilitation	M	U	NOI/NSI	LH	D	2005	1,982,000	
Lake Huron Water Treatment Plant Clearwell No. 2 Rehabilitation	M	U	NOI/NSI	LH	C	2005	15,350,000	
					Lake Huron - Subtotal		**$ 20,163,000**	
Replacement of Equipment at W. Chicago, Electric, Farmington, Michigan & Roseville Booster Stations	M	U	NOI/NSI	PSR	D/C	2005	$ 3,927,000	Various
Reservoir Rehabilitation and Inspection Repair Program Management	M	O	NOI/NSI	PSR	D/C	2005	20,413,000	
Chesterfield Booster Pumping Station	N	P	NOI/NSI	PSR	D	2005	3,000,000	
Chesterfield Booster Pumping Station	N	P	NOI/NSI	PSR	C	2005	32,000,000	
West Service Center Improvements	M	P	NOI/NSI	PSR	C	2006	1,000,000	
Ypsilanti Station Improvements	M	P	NOI/NSI	PSR	S/D/C	2006	1,670,000	
Wick Pumping Station Electrical System Improvements	M	P	NOI/NSI	PSR	D/C	2006	5,100,000	
Bypass of Imlay Pump Station Toward Flint	N	P	NOI/NSI	PSR	C	2006	2,200,000	
Joy Road Pumping Station Improvements	M	P	NOI/NSI	PSR	C	2005	5,911,000	

High Priority Projects - Water Supply System (41)

Project	Project Status*	Project Time Line**	Impact on Budget***	Program Category	Project Phase****	Fiscal Year	Amount	Administrative District
Romeo Pumping Station	N	P	NOI/NSI	PSR	S	2007	2,000,000	
Romeo Pumping Station	N	P	NOI/NSI	PSR	C	2009	27,800,000	
						Pumping Station and Reservoirs - Subtotal	**$ 105,021,000**	
						All Categories - Total	**$ 1,227,830,002**	

Legend

*Project Status: M=project is maintaining current infrastructure; N=project will result in new development

**Project Time Line: P=project is proposed; O=project is ongoing; U=project is one time only and is underway

***Impact on Operating Budget: AF=additional funding required; RF=results in reduction of funding; NOI=no operating impact

***Impact on Staffing Budget: AS=additional staffing required; RS=results in reduction of staffing; NSI=no staffing impact

****Project Phase: S=study; D=design; C=construction; CA=construction assistance; DB=Design Build